

Application No.: 10/809,896

## REMARKS

### I. Introduction

In response to the pending Office Action, Applicants have amended claims 1, 3, 5 and 7 to further clarify the subject matter of the invention and to overcome the § 112 rejections. The limitations of claim 2 have been incorporated into claim 1 and the limitations of claim 4 have been incorporated into claim 3. Claims 2 and 4 have been cancelled, without prejudice. In addition, new claim 13 has been added. Support for new claim 13 may be found, for example, in original claim 5. No new matter has been added.

Applicants note with appreciation the indication of allowable subject matter recited in claims 7-12.

Applicants respectfully submit that all pending claims are patentable over the cited prior art for the reasons set forth below.

### II. The Rejection Of Claims 1-6 Under 35 U.S.C. § 102

Claims 1-6 are rejected under 35 U.S.C. § 102(b) as being anticipated by Takasu et al. (*Electrochimica Acta* 45 (2000), 4135-4141). Applicants respectfully submit that Takasu fails to anticipate the pending claims for at least the following reasons.

With regard to the present invention, claim 1 recites a ruthenic acid nanosheet having a thickness of not more than 1 nm, represented by the formula (1):  $[\text{RuO}_{2+0.5x}]^x$ , wherein  $0 < x < 1$ .

One feature of one embodiment of the present invention is a ruthenic acid nanosheet of less than 1 nm in thickness. With this structure, charging capability superior to that of conventional ruthenium oxide can be obtained. In addition, the ruthenic acid nanosheets, which

**Application No.: 10/809,896**

are electron conductive layers having electrochemical stability, are stacked with proton conductive layers comprising water or hydrated protons on the molecular level. As such, the layered ruthenic acid compound exhibits significantly increased charging capability and is applicable to a high-powered large-capacitance super capacitor.

In contrast to the present invention, and as admitted in the Office Action, Takasu fails to disclose a nanosheet that has a thickness of less than 1 nm. The Examiner alleges that because the nanosheet forming process recited in the present specification is identical to the process described in Takasu, then Takasu would produce a nanosheet with a thickness of less than 1 nm. This allegation is false. Nowhere in the Takasu reference is there a teaching or description of the steps (c) reacting said protonic layered ruthenic acid hydrate with alkylammonium or alkylamine to obtain a layered alkylammonium-ruthenic acid intercalation compound; and (d) mixing said layered alkylammonium-ruthenic acid intercalation compound with a solvent to obtain a colloid containing a ruthenic acid nanosheet having a thickness of not more than 1 nm. As such, the Examiner has not provided the requisite evidence that the Takasu process would inherently provide a nanosheet having a thickness of not more than 1 nm.

Furthermore, Takasu teaches against using a nanosheet using the process of transforming the ruthenium oxide particles into a layer structure. Page 4140, 2nd column of Takasu describes how the ruthenium oxide compound was "not stable during the electrochemical potential cycling in an acidic solution due to its layered structure." This agrees with the present specification, which describes the layered compound of Takasu as "not satisfactory due to lack of strength" (see, page 4, lines 14-15 of the specification). As such, one skilled in the art would not find the present invention obvious in view of Takasu.

**Application No.: 10/809,896**

As the Examiner is aware, anticipation under 35 U.S.C. § 102 requires that each element of the claim in issue be found, either expressly described or under principles of inherency, in a single prior art reference, *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983). As Takasu, at a minimum, fails to disclose a ruthenic acid nanosheet having a thickness of not more than 1 nm, represented by the formula (1):  $[\text{RuO}_{2+0.5x}]^x$ , wherein  $0 < x < 1$ , it is clear that Takasu fails to anticipate claim 1. Therefore, it is respectfully requested that the rejection of claim 1 under § 102 be withdrawn.

**III. All Dependent Claims Are Allowable Because The Independent Claim From Which They Depend Is Allowable**

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claim 1 is patentable for the reasons set forth above, it is respectfully submitted that all pending dependent claims are also in condition for allowance.

Moreover, as new claim 13 is dependent upon claim 1, which is allowable for the reasons set forth above, Applicants submit that new claim 13 is also allowable over the cited prior art.

**IV. Conclusion**

Accordingly, it is urged that the application is in condition for allowance, an indication of which is respectfully solicited.

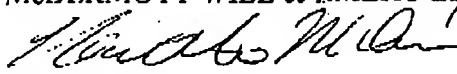
To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper,

**Application No.: 10/809,896**

including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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